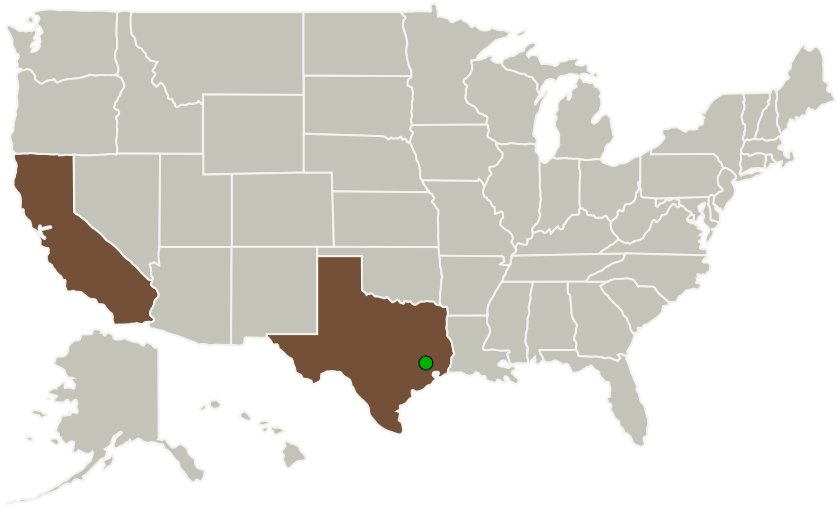
Advanced Cookware and Techniques for Food Preparation at Reduced Pressure and Gravity, Phase I

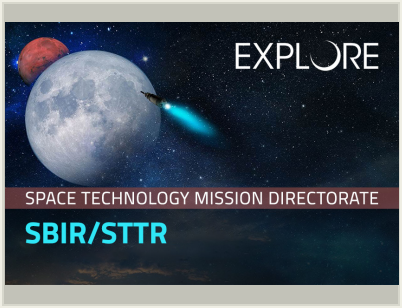
Completed Technology Project (2010 - 2010)

Project Introduction

We propose to develop detailed design requirements for adapting COTS cooking appliances for meal preparation under Lunar 8 psia ambient conditions, and to produce one or more prototype devices required for a Lunar galley by modifying commercial off the shelf consumer kitchen appliances to hold Earth ambient pressure safely in an oxygen-enriched, 8 psi space habitat. The modified devices will be use-tested to determine labor requirements for selected food preparation tasks in modified vs. unmodified equipment. Finally, foods prepared at earth ambient pressure and 8 psi ambient pressure in the same equipment will be sensory tested to elucidate differences in flavor, texture, and overall acceptability. The proof-of-concept prototypes produced in this project will be suitable for testing food preparation in lunar habitat analogues. They will be designed for use under positive, zero or negative pressure to serve multiple research purposes, including preparation of foods under 8 psi ambient pressure, and fire safety testing in the habitat atmosphere.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
Makel Engineering, Inc.	Lead Organization	Industry Small Disadvantaged Business (SDB)	Chico, California
Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas

Primary U.S. Work Locations	
California	Texas

Project Transitions

January 2010: Project Start

July 2010: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140074)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Makel Engineering, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

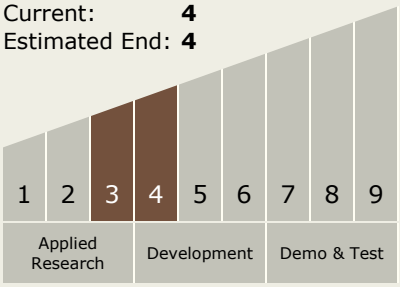
Carlos Torrez

Principal Investigator:

Susana Carranza

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.3 Human Health and Performance
    - TX06.3.5 Food Production, Processing, and Preservation

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System